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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1 (Currently Amended).   A method for controlling the execution of tasks in a processor comprising a plurality of processing modules, comprising the steps of:

calculating consumption information <u>for a plurality of scenarios for executing a plurality of tasks, the consumption information of each scenario</u> based on probabilistic values for activities associated with the tasks;

executing the tasks <u>according to a selected scenario</u> on said plurality of processing modules responsive to said consumption information.

2 (Original). The method of claim 1 and further comprising the steps of:

monitoring actual activity occurrences in processing modules; and

modifying the execution of the tasks based on said monitoring step.

3 (Original). The method of claim 1 wherein said executing step comprises the step of executing the tasks on said plurality of processing modules responsive to said consumption information in order to provide the maximum performance within thermal constraints associated with the processing system.

4 (Original). The method of claim 1 wherein said executing step comprises the step of executing the tasks on said plurality of processing modules responsive to said consumption information in order to execute the tasks using the lowest possible energy consumption.

5 (Original). The method of claim 1 wherein said calculating step comprises the steps of:

generating a task allocation scenario;

estimating the activities for task allocation scenario;

computing the consumption associated with said activities.

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6 (Original). The method of claim 5 wherein said step of generating a task allocation scenario comprises the step of receiving a task list describing the tasks to be executed and a task model describing the tasks.

7 (Original). The method of claim 6 wherein the task model includes initial estimates for each task.

8 (Original). The method of claim 7 wherein the task model further includes priority constraints associated with the tasks.

9 (Original). The method of claim 8 wherein said task model includes information regarding possible degradations associated with one or more of the tasks in said task list.

10 (Original). The method of claim 5 wherein said computing step comprises the step of computing the energy consumption associated with said activities.

11 (Original). The method of claim 5 wherein said computing step comprises the step of computing the power consumption associated with said activities.

12 (Currently Amended).   A processing device comprising:
one or more processing modules for executing a plurality of tasks, said processing subsystems executing a power management function for:
calculating consumption information <u>for a plurality of scenarios for executing a plurality of tasks, the consumption information of each scenario</u> based on probabilistic values for activities associated with the tasks;
controlling the execution of the tasks <u>according to a selected scenario</u> on said processing modules responsive to said consumption information.

13 (Original). The processing device of claim 12 and further comprising counters for measuring activity occurrences and wherein said power management function further:

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monitors said counters; and

modifies the execution of the tasks based on values in said counters.

14 (Original). The processing device of claim 12 wherein said power management function controls the execution of tasks on the processing modules responsive to said consumption information in order to provide the maximum performance within thermal constraints associated with the processing system.

15 (Original). The processing device of claim 12 wherein said power management function controls the execution of tasks on said processing modules responsive to said consumption information in order to execute the tasks using the lowest possible energy consumption.

16 (Original). The processing device of claim 12 wherein said power management function calculates the consumption information by:

generating a task allocation scenario;

estimating the activities for said task allocation scenario;

computing the consumption associated with said activities.

17 (Original). The processing device of claim 16 wherein said power management function generates a task allocation scenario by receiving a task list describing the tasks to be executed and a task model describing the tasks.

18 (Original). The processing device of claim 17 wherein the task model includes initial estimates for each task.

19 (Original). The processing device of claim 18 wherein the task model further includes priority constraints associated with the tasks.

20 (Original). The processing device of claim 19 wherein said task model includes information regarding possible degradations associated with one or more of the tasks in said task list.

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21 (Original). The processing device of claim 16 wherein said power management function computes the consumption by computing the energy consumption associated with said activities.

22 (Original). The processing device of claim 16 wherein said power management function computes the consumption by computing the power consumption associated with said activities.

23 (New).   A method for controlling the execution of tasks in a processor comprising a plurality of processing modules, comprising the steps of:

calculating consumption information based on probabilistic values for activities associated with the tasks by:

generating a task allocation scenario based on a task list describing the tasks to be executed and a task model describing the tasks along with information regarding possible degradations associated with one or more of the tasks in said task list;

estimating the activities for the task allocation scenario; and

computing the consumption associated with said activities; and

executing the tasks on said plurality of processing modules responsive to said consumption information.

24 (New).   A processing device comprising:

one or more processing modules for executing a plurality of tasks, said processing subsystems executing a power management function for:

calculating consumption information based on probabilistic values for activities associated with the tasks by:

generating a task allocation scenario based on a task list describing the tasks to be executed and a task model describing the tasks along with information regarding possible degradations associated with one or more of the tasks in said task list;

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estimating the activities for the task allocation scenario; and

computing the consumption associated with said activities; and

controlling the execution of the tasks on said processing modules

responsive to said consumption information.

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